National Institute of Environmental Health Sciences

Impact on human health of particulate matter emitted from burnings in the Brazilian Amazon region

Author(s): Ignotti E, Valente JG, Longo KM, Freitas SR, Hacon Sde S, Netto PA
Year: 2010
Journal: Revista De Saude Publica. 44 (1): 121-130

Abstract:

OBJECTIVE: To analyze the impact on human health of exposure to particulate matter emitted from burnings in the Brazilian Amazon region. METHODS: This was an ecological study using an environmental exposure indicator presented as the percentage of annual hours (AH%) of PM2.5 above 80 microg/m3. The outcome variables were the rates of hospitalization due to respiratory disease among children, the elderly and the intermediate age group, and due to childbirth. Data were obtained from the National Space Research Institute and the Ministry of Health for all of the microregions of the Brazilian Amazon region, for the years 2004 and 2005. Multiple regression models for the outcome variables in relation to the predictive variable AH% of PM2.5 above 80 microg/m3 were analyzed. The Human Development Index (HDI) and mean number of complete blood counts per 100 inhabitants in the Brazilian Amazon region were the control variables in the regression analyses. RESULTS: The association of the exposure indicator (AH%) was higher for the elderly than for other age groups (beta Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.10). For each 1% increase in the exposure indicator there was an increase of 8% in child hospitalization, 10% in hospitalization of the elderly, and 5% for the intermediate age group, even after controlling for HDI and mean number of complete blood counts. No association was found between the AH% and hospitalization due to childbirth. CONCLUSIONS: The indicator of atmospheric pollution showed an association with occurrences of respiratory diseases in the Brazilian Amazon region, especially in the more vulnerable age groups. This indicator may be used to assess the effects of forest burning on human health.

Source: Ask your librarian to help locate this item.

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event

Air Pollution: Particulate Matter

Extreme Weather Event: Wildfires

Geographic Feature:

resource focuses on specific type of geography

Freshwater, Tropical, Other Geographical Feature

Other Geographical Feature : rainforest

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Central/South America

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Developmental Effect, Respiratory Effect

Developmental Effect: Reproductive

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : respiratory hospital admissions

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly, Pregnant Women

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified